



UNIVERSITY OF BIRMINGHAM

# WM-NET ZERO

A Health-centred Systems Approach Towards Net-Zero:  
Transforming Regional Climate Mitigation Policies

## Investigating the representation of behavioural factors in participatory systems maps (using the COM-B model)

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On behalf of the WM Net Zero team

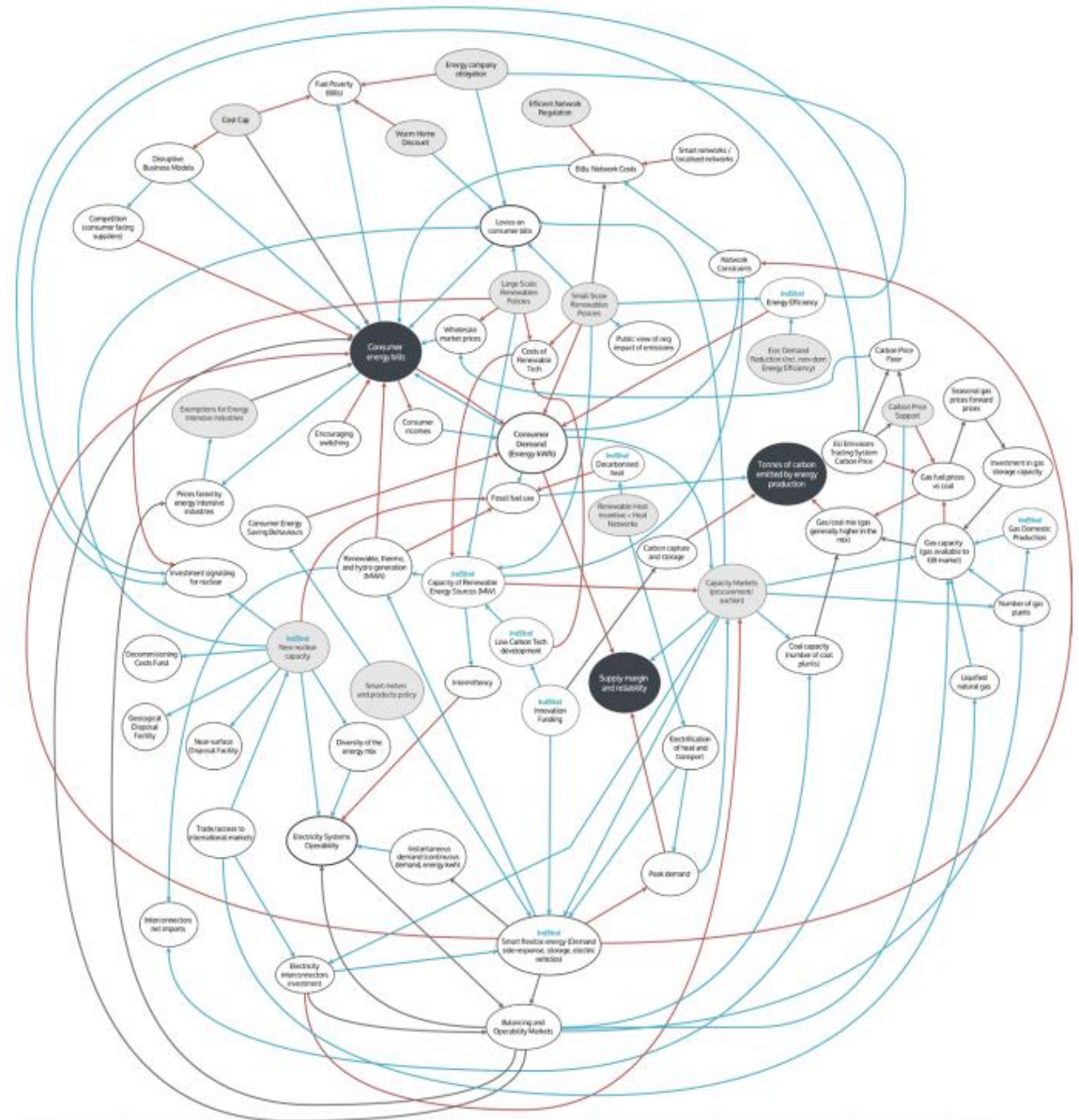


The WM-NetZero project is supported by Wellcome Trust (227150\_Z\_23\_Z) under the Advancing climate mitigation policy solutions with health co-benefits in G7 countries scheme.



# Participatory Systems Mapping

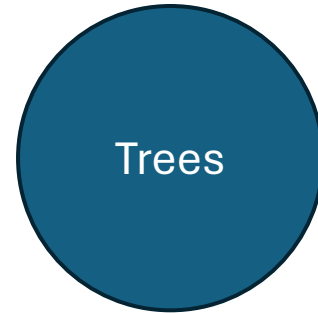
*Invited participants collaboratively construct a simple causal model of their system, its components and drivers and their interdependencies*



# What is in a map

• Nodes | Factors | Elements

Edges | Connections | Links



- Things (or sometimes people but not today)
- Variables (need to go up or down)

Positive (same),  
Negative (opposite),  
or Complex

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## What it's useful for...

- Showing how the things we care about are connected
- Capturing the complexity of a context, for example around a theory of change
- Having a different kind of conversation
- Topics where there's mixed/patchy data - Identifying 'indicators' where you can collect adjacent data
- Understanding how other people are understanding the system

## Challenges:

- People love it or hate it
- Asking for a lot of people's time
- Works best when you do a lot of prep, not always possible
- Digitisation and analysis are labour intensive and not massively intuitive (to begin with)

## Why map behaviours?

“Behaviours don’t occur  
in isolation, they facilitate  
and compete with each  
other,  
within and between  
individuals,  
influenced by their social  
and material world”

– Susan Michie

# What is COM-B?

Capability		Opportunity		Motivation	
Physical	Psychological	Physical	Social	Automatic	Reflective
Skills	Knowledge	Environmental context	Social pressure	Emotions	Beliefs about capability
Abilities	Memory	Resources	Norms	Rewards	Beliefs about consequences
Things that have been practiced	Attention		Culture	Incentives	Identity
	Decision processes		Conformity	Punishments	Goals

# How are behaviours represented in our systems map?

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- 'behaviour change' came up multiple times as its own factor
- 43 individual behaviours, many related to one another
- Upstream analysis:
  - Most have social or physical opportunity
  - Only two-thirds have something representing automatic or reflective motivation
  - Only half have upstream factors representing physical or psychological capability

# (ability to) Repair and maintain property

Capability		Opportunity		Motivation	
Physical	Psychological	Physical	Social	Automatic	Reflective
Skills: Access to available funding	Knowledge: Access to available funding	Resources: Access to available funding			
		Resources: Asset-rich, cash poor homeowners; Poverty			
Skills: People with critical/necessary skills		Resources: People with critical/necessary skills			

In-degree = 4

# Green space use

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Capability		Opportunity		Motivation	
Physical	Psychological	Physical	Social	Automatic	Reflective
	Awareness of green space	Accessible green space			
		Active travel			
		Dog ownership			Dog ownership
		Incidences of extreme heat			
		Leisure time			
		Outdoor air quality			Outdoor air quality
		Outdoor leisure activities			
		Physical activity			

In-degree = 10

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## Take aways

- Systems mapping can reveal biases in the way behaviours are understood
- Mapping the systems that behaviours exist within can provide insight into effective leverage points, as well as barriers, to desired behaviours
- Different framing and prompts during the mapping process may allow for better exploration of behaviours within systems maps
- Causal mapping may not be entirely compatible with frameworks like COM-B (conditionality)



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## Thank you for your attention!

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**Get involved and stay connected**

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